required the greatest skill and patience to save them unbroken, and in some cases to save an unusually fine piece it was necessary to sacrifice inferior ones surrounding it." A short time ago I visited Vasiliki myself under the guidance of Mr. Seager, and can testify to the great interest of his work there. The plaster-filled houses are remarkable. May it not be possible that this hard stuff, which makes the excavation of the houses at Vasiliki so difficult, can be explained in a manner different from that adopted by Mr. Seager? At Phaistos the older palace (*Middle Minoan* or *Kamáres* period) was partly razed, and the remains filled up and covered with a layer of hard beton or cement, as hard as that of Vasiliki, on which the *Late Minoan* palace was built. I would suggest that the plaster of Vasiliki may be in reality a cement filling-up, on which later houses were built. There are certainly two or three distinct superimposed "towns" at Vasiliki. Mr. Seager is now proceeding with the work at Vasiliki alone, as Mrs. Hawes (Miss Boyd) has not visited Crete this year.

Thus Miss Boyd's Mycenæan Pompeii still continues to be interesting, and we hope that she will be enabled to go on with her work in Crete. Miss Boyd's is the most important archæological work connected with the University of Pennsylvania, and we hope that the authorities of that institution adequately recognise this fact. H. R. HALL.

THE IMMIGRATION OF SUMMER BIRDS.[1]

THOUGH great advance in our knowledge has been made during recent years concerning the migration of birds as observed in our islands, yet much remains to be learned, and any inquiry that will add to what is already known must be hailed with satisfaction. In what direction and by what methods such advancement is to be sought are questions requiring not only careful consideration, but a full knowledge of what has already been accomplished.

In electing to investigate the immigration of summer birds, the committee appointed by the British Ornithologists' Club has selected the best known of all the phases in the phenomenon. It is true that a special feature has been added in the endeavour to trace the movements of the migrants through the country after their arrival on our shores, but it is much to be doubted whether the results will contribute anything of material importance or at all commensurate with the labour involved. On the other hand, our knowledge of the autumnal departure movements, both from their inland nesting haunts and from our shores, of these same birds is far from complete.

The new committee labours under a misapprehension in supposing that the south coast was entirely omitted from the scope of the British Association committee's inquiry, for part of both the eastern and western sections were scheduled annually. Moreover, the migratory movements on the whole of that coast, for both spring and autumn, were afterwards fully investigated for three years, and the results incorporated in the later reports submitted to the Association.

Then as to methods. It may be well, perhaps, to remind the new committee of the opinions, based on long experience, expressed by Prof. Newton and his colleagues in their final report to the Southport meeting of the British Association in 1903. They say, "the last thing your committee would wish is to discourage the prosecution of observations, but they feel bound to express the opinion that no great advance of our present knowledge of the subject seems likely to be made until new methods are applied. What they should be it is impossible to suggest, but those used at present appear to have reached their limit." In this mature opinion the present writer fully concurs.

The report under notice is not lacking in interest, but it does not add anything material to our knowledge; indeed, several years' observations will be necessary before conclusions of permanent value, though possibly not advancing what is already known, can be expected. By premature publication much harm may be done, and it is to be feared that writers will arise and tell us, on the strength of this report, that, among other things, whinchats, redstarts, whitethroats, reed warblers, cuckoos, and other species do not arrive on the western section of the south coast, when further investigations by the committee will prove that they *do*. It is certainly surprising to find the new committee instituting a comparison between the weather conditions prevailing in the English Channel and the arrival of birds on its shores (of course with abortive results), for it was hoped that it had been clearly proved by exhaustive investigations that the meteorological conditions influencing such movements must be sought in the area whence the migrants took their departure.

In conclusion, one is tempted to suggest that it would be well if the members of the committee of the British Ornithologists' Club, before proceeding further with their arduous labours, took stock of the situation, and asked themselves if their energies might not be advantageously directed to more useful and productive branches of the subject they have at heart.

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[1] "Report on the Immigrations of Summer Residents in the Spring of 1905." By the Committee appointed by the British Ornithologists' Club. (London: Witherby and Co., 1906.)

NOTES.

PROF. I. P. PAVLOFF, professor of physiology in the University of St. Petersburg, will deliver the Huxley lecture at the Charing Cross Hospital Medical School on Monday, October 1.

PROF. EMIL FISCHER, professor of chemistry in the University of Berlin, has been elected a foreign member of the Royal Society of New South Wales.

AN Irish International Exhibition will be opened in Dublin in May next. It will be the first exhibition of its kind to be held in Ireland for nearly forty years.

THE Italian Electrotechnical Association will meet in Milan on September 30, when visits will be paid to various factories in the neighbourhood and the hydro-electrical installations which have been recently constructed.

THE Right Hon. Sir John Eldon Gorst has been appointed special commissioner to represent His Majesty's Government at the New Zealand International Exhibition, the opening of which is to take place on November 1 next.

WE regret to have to record the death of Prof. W. B. Dwight, who occupied the chair of natural history in Vassar College, Poughkeepsie, N.Y. Prof. Dwight was an original member of the Geological Society of America, and interested himself for many years in the Palæozoic rocks of Wappinger Valley and others in the neighbourhood of Poughkeepsie.

THE programme of the prize subjects of the Industrial Society of Mulhouse for the competition closing in 1907 has just been issued. Little change has been made in the programme of 1906, a *résumé* of which was given in Nature (vol. lxxiii., p. 164). The competition is open to all nationalities.

A Reuter telegram received at Copenhagen from Nome, Alaska, on September 3, announces that the *Gjoa*, the vessel of the Norwegian Polar Expedition, has arrived there, having completed the navigation of the North-West Passage in a westerly direction. The expedition sailed in May, 1903, in charge of Captain Amundsen, and letters recording observations made in the neighbourhood of the north magnetic pole were summarised in Nature of November 16, 1905 (vol. lxxiii., p. 59).

During the past few days the following earthquake shocks have been recorded in the daily papers:—*August* 29.—A violent earthquake was felt at Tacna and Arica, and was followed by sixteen further shocks. *August* 30.—Bodö, Norway. A violent earthquake shock was felt at midnight. *August* 31.—An earthquake shock lasting two seconds was felt at San Juan at 9.45 a.m. *September* 2.—Valparaiso. Slight earthquake shocks were again felt.

Herr O. Wentzki, of Frankfurt a. M., has been awarded the 300-marks prize of the Berufsgenossenschaft der chemischen Industrie for the discovery of the best means of purifying hydrogen which contains arsenic. According to Wentzki's method, the impure gas is led up into a cylinder containing two parts of dry calcium chloride to one part of moist sand or other similarly indifferent substance, the bottom end of the cylinder being made of wire gauze of fine mesh; the capacity of the cylinder should be about one-third that of the hydrogen generator.

The opening session of the International Congress on Methods of Testing was held in the Palais des Académies, Brussels, on September 3, under the presidency of Mr. F. Berger (Vienna). Five hundred members were present from eighteen different countries. Addresses of welcome were delivered by Count de Smet de Naeyer, the Belgian Prime Minister, and by Mr. H. Raemarckers, Secretary of the Department of Railways. An address was then given by Prof. F. Schüle (Zurich) in memory of the deceased president, Ludwig von Tetmejer. A report on the work of the executive council since the last congress was presented by Mr. Berger, and interesting papers on the iron and steel industry of Belgium and on the Belgian cement industry were read by Baron E. de Laveleye and Mr. E. Camerman. The mornings of September 4, 5, and 6 were devoted to the work of the sections and the afternoons to excursions. Excursions to the works of the Cockerill Company at Seraing and to Ostend have been arranged for September 7, 8, and 9. The congress is held under the patronage of the King of the Belgians, who on September 2 received the members of council.

The agenda programme of the seventeenth annual general meeting of the Institution of Mining Engineers has just been issued. The meeting will take place at Hanley from September 12–14, and the following papers will be read or taken as read:—The Courrières explosion, by Messrs. W. N. Atkinson and A. M. Henshaw; gypsum, with special reference to the deposits of the Dove Valley, by Mr. T. Trafford Wynne. The following papers will be open for discussion:—Commercial possibilities of electric winding for main shafts and auxiliary work, by Mr. W. C. Mountain; electrically driven air-compressors combined with the working of Ingersoll-Sergeant heading machines, and the subsequent working of the Busty Seam at Ouston Colliery, by Mr. A. Thompson; practical problems of machine mining, by Mr. S. Mavor; the strength of brazed joints in steel wires, by Prof. H. Louis; by-product coke and Huessener by-product coke ovens, by Dr. J. A. Roelofsen; considerations on deep mining, by Mr. George Farmer; the education of mining engineers, by Prof. J. W. Gregory; the capacity current and its effect on leakage indications on three-phase electrical power service, by Mr. S. F. Walker; petroleum occurrences in the Orange River Colony, by Mr. A. R. Sawyer; and development of placer gold mining in the Klondike district, Canada, by Mr. J. B. Tyrrell.

According to a recent report of the United States Consul at Brussels, a laboratory museum of electricity in that town will be opened to the public in October next. The museum has been built and equipped by Mr. R. Goldschmidt, of Brussels, whose object in presenting the museum is the development and extension of the use and application of electricity in Belgium by practical experimental instruction. The institution will contain all kinds of electrical models and appliances, which may be freely handled for study and experiment. Models and apparatus will be conveniently placed at the disposal of the public upon separate tables, and may be connected with the electric supply at will. The museum is divided into four large rooms, one of which will be devoted to machines serving to produce phenomena due to magnetism and to electricity and chemical reaction; another room will be given up to the demonstration of electrical laws. A circular gallery round the room is designated as the second hall; here will be found machines of all sorts, lamps, bells, agricultural and dairy implements, conveniently exhibited, which may be worked by simply adjusting the electric appliances supplied to each table. There will also be free telegraph, wireless telegraph and telephone offices. The third hall is subdivided into reading-rooms, where the latest scientific publications will be displayed. In the fourth hall will be found all kinds of large motors, dynamos, &c., with which the public are at liberty to study and experiment.

The ancient town of Nuremberg appears to be one of the most popular places for the annual meetings of many German scientific and technical societies; for example, mention may be made of the twenty-ninth Hauptversammlung des Vereins zur Wahrung der Interessen der chemischen Industrie Deutschlands, September 20–22; the third Hauptversammlung of the Verband konditionierender Apotheker für das deutsche Reich, September 1 and 2; the Verband deutscher Gewerbevereine, September 9–12; the seventeenth deutsche Mechanikertag, August 17 and 18.

Other meeting places and times fixed for this year's meetings of foreign societies, &c., include:—the international congress for cork manufacturers at Eisenach, September 1; the conference of pharmaceutical faculties (founded in 1900 for the furthering of pharmaceutical instruction in America) at Indianapolis, September 5; the eighth general meeting of the Internationaler Verein der Lederindustrie-chemiker in Frankfurt a. M., September 17–20; the International Tuberculosis Conference, Amsterdam, September 6–8; the Orzagos Iparegyesület (a national industrial society), Budapest, October 20–22 (a congress to consider questions connected with the acetylene industry); the fifth Hauptversammlung des deutschen Medizinalbeamtenvereins, Stuttgart, September 13; the Hauptversammlung des Verbandes selbständiger öffentlicher chemiker in Dessau, September 23–25; and the fourth delegates' meeting for the International Union for the Protection of Workmen's Interests, Geneva, September 26–29.

THE Mysore Government has, the *Pioneer Mail* reports, published a note on the destruction of rats in Mysore city. The system of rat destruction was given a fair trial in the city of Mysore from July, 1905, with the result that the city, which used to be infected with plague year after year, has been practically free during the year 1905–6, there being only seven cases and five deaths against 1244 and 995 respectively in the previous year. The total number of rats killed in the city since the commencement of the campaign, *i.e.* from July 4, 1905, up to July 13, 1906, was 23,741, of which about 12,000 are reported to be females. The following table shows the number of rats killed monthly in the city since January, 1906:—January, 870; February, 492; March, 708; and April, 1050.

A SPELL of exceptionally bright and hot weather occurred over England during the past week, and the thermometer attained a higher reading than had been registered for many years. At Greenwich the shade temperature exceeded 90° on four consecutive days, and the following will show the remarkable character of the weather:—

	Air max.	Sun max.	Average air max.	Absolute previous max. since 1841	
				temp.	date
August 31	94°·3	152°·0	71°	89	1886
Sept. 1	91·9	147·8	71	88	1886
,, 2	93·5	147·0	71	83	1880
,, 3	91·0	151·8	70	85	1880

There is no instance in the Greenwich records of the shade temperature having previously exceeded 90° on four consecutive days at any period of the summer, and the only instances of 90° on three consecutive days are August 13–15, 1876, and August 16–18, 1893. The absolutely highest temperature ever registered at Greenwich is 97°. At the reporting station of the Meteorological Office, in St. James's Park, Westminster, the highest temperature attained was 91°, and that reading occurred on each of the three days August 31 and September 1 and 2; on September 3 the reading was 88°. Equally high temperatures occurred in other parts of England. At Nottingham the sheltered thermometer registered 93° on August 31 and September 1, 94° on September 2, and 90° on September 3. The absolutely highest temperature reported to the Meteorological Office was 95° at Colly Weston, in the Midlands. A gentle southerly wind prevailed over the whole country, and the sky throughout was peculiarly free from cloud, whilst the sun shone continuously for several days. Cooler weather set in on September 4, owing to the spreading over us of a north wind, and rain occurred in many parts of the country. In London rain set in very tardily at about 10 o'clock on Tuesday night, but it afterwards fell heavily. Very hot weather also occurred in parts of France and Germany.

BIRDS and their habits constitute the whole of the contents, so far as separate articles are concerned, of the *Zoologist* for August, Mr. G. Dalgleish discussing the wild duck and grebe, Mr. E. Selous the ruff, Messrs. Clark and Rodd the avifauna of Scilly, and Mr. G. W. Kerr that of Staines. In the "Notes" Mr. Aplin's account of the breeding of the black-necked grebe in this country will be read with interest.

THE Indian fresh-water polyp, according to Dr. Nelson Annandale (Mem. Asiatic Soc. Bengal, vol. i., No. 16), is entitled to rank as a distinct species (*Hydra orientalis*). Although diœcious, sexual reproduction does not apparently play a very important part in its development; when this takes place the individuals perish, several generations being completed in a year. The memoir on the Hydra forms a part of the results of a detailed study of the fresh-water fauna of India which is now being undertaken by Dr. Annandale, who has favoured us with copies of seven papers from the Proceedings of the Asiatic Society of Bengal relating to this subject. The first part deals with a brackish-water sponge (Spongilla), while in the second the author finds himself in a position to determine definitely the systematic place of the remarkable fresh-water polyzoan discovered at Nagpur by the geologist Hislop, in whose honour it was named Hislopia by his friend Carter. Other interesting novelties are an aquatic cockroach belonging to a group hitherto known only from the Malay countries, and an aquatic weevil, which, so far at any rate as habits are concerned, is altogether unique.

IN the *Times* of August 30 is an excellent summary, by a correspondent, of the legislation and orders relating to the protection of wild birds and their eggs in the British Islands. After referring to the statutes affecting the country in general, and mentioning the fact that "sanctuaries," within which no bird may be killed at any season, have been established in five counties and two boroughs in England, the writer comments on the absence of any provision in the law for permitting birds and their eggs to be taken when required for scientific purposes. Despite many incongruities, if not absurdities—as, for instance, an enactment in Gloucestershire which practically amounts to protection for a certain species of owl during the time it is absent from the county and permission to kill it on arrival—it appears to be the opinion of the executive authorities that the statutes and orders for the protection of birds work, on the whole, satisfactorily. On the other hand, the enactments with regard to the taking of eggs are regarded as less satisfactory. In the first place, in the writer's opinion, such law "must almost of necessity work unequally, and weigh more heavily on the poor and uneducated than on well-to-do people, such as the dealers, who do most mischief." Secondly, the scheduling of the eggs of certain species (to the exclusion of others equally deserving of protection) is considered highly unsatisfactory, since it affords (on account of the difficulty of identification) a ready means of escaping conviction by those who "know the ropes," while the unsophisticated stand a great chance of being condemned, even though they may really be innocent of the particular charge. As an alternative the writer suggests the passing of a short Act making birds and their eggs the property of the owners of the soil on which they are found, waste lands being for this purpose vested in local authorities.

THE Rev. Guy Halliday writes to report that on July 30 he found *Goodyera repens* in flower near Holt, in Norfolk. This is the most southerly limit recorded for this orchid. The plant, which was identified at Kew, has not hitherto, Mr. Halliday thinks, been found south of Market Weighton, in Yorkshire.

IN continuation of previous descriptions of new or rare pyrenomycetous fungi, Mr. C. E. Fairman notes some new species from western New York in vol. iv. of the Proceedings of the Rochester Academy of Science. A new species of Sporormia was found on pods of the locust, *Robinia pseudacacia*, thus furnishing another species growing on vegetable matter, whereas most are saprophytic on dung. Among new species of Amphisphæria one receives the specific name of *aeruginosa*, but it is not evident whether the green colour is due to this fungus or to a Chlorosplenium.

One of the most important collections of plants in recent years was collected by Mr. E. H. Wilson, chiefly in western China, for Messrs. James Veitch and Sons. A few of the more striking new species are described in the *Kew Bulletin*, No. 5. Three species of Berberis, a new genus Hosiea under the order Icacineæ, and some roses are among the number. Sir George Watt contributes an interesting article on Burmese lacquer-ware and varnish, the basis of which is the oleo-resin, *thit-si*, of *Melanorrhea usitata*. Less generally known than the Pagan and Prome lacquer boxes and trays is the Mandalay moulded lacquer; the resin, thickened with ground rice husk, furnishes a material suitable for modelling figures and ornamentation in relief. Mr. C. H. Wright continues his diagnoses of new African plants, and Mr. J. H. Hellier identifies the Eben tree of Old Calabar as *Pachylobus edulis*.

In a forest survey the examination and measurement of selected plots provide data for working plans. A more detailed study of certain plots in a forest reserve on the island of Luzon with the object of investigating the origin of the different types of vegetation is being undertaken by Mr. W. H. Whitford, who has published the first part of his account in the *Philippine Journal of Science*, vol. i., No. 4. Even here disturbances caused by human agency have to be taken into account. The natives clear the land for cultivation, but leave the clearings after a while, when they change to grass-land or revert to forest. Again, where the timber has been ruthlessly cut out or burnt, only brushwood mixed with trees of invading species is left. For such a type of vegetation the writer adopts the term *parang*, distinguishing the parang according to the dominant tree or trees.

A formula giving the influence of frequency upon the self-inductance of coils is discussed by Mr. J. G. Coffin in the Proceedings of the American Academy of Arts and Sciences, xli., 34. The formula itself involves hyperbolic functions, but the author shows by means of curves that the results for large or small frequencies can be given with sufficient accuracy by simple approximations.

In a short paper in the *Verhandlungen* of the German Physical Society, Prof. F. Kohlrausch suggests the use of the term "resistance capacity" as applied to the space between two electrodes to denote the resistance of that space when filled with a medium of unit electrical conductivity, and he shows how this quantity is related to the capacity of a condenser the dielectric of which occupies the space in question.

Dr. Joseph Nabl, of Vienna, contributes to the *Naturwissenschaftliche Rundschau* an article written for the purpose of explaining in simple language the meaning of the second law of thermodynamics and its connection with the theory of probability (Boltzmann's minimum theorem), as well as the notion of entropy and the properties associated with it. The account is probably as good a one as could be given in so limited a space for the instruction of non-mathematical readers.

In the Proceedings of the American Academy of Arts and Sciences, xli., 32, Mr. Harvey N. Davis discusses the longitudinal vibrations of a rubbed string. Instead of basing the investigation on the use of Fourier's series as was done by Helmholtz in his well-known investigation of the vibrations of a violin string, Mr. Davis makes use of the graphic methods which have been commonly employed by mathematicians in discussing the impact of elastic beams. It appears both from theory and experiment that the envelope of a string which is rubbed either transversely or longitudinally at an aliquot point $1/k$ of its length is not Helmholtz's parabola, but k chords inscribed in that parabola—a result which strikes the reader as being, on the face of it, in accordance with common sense. A number of other results, such as the verification of Krigar Menzel's law, have been discussed.

Vol. iii., No. 2, of Investigations of the Departments of Psychology and Education of the University of Colorado contains several interesting papers. Under the title "Proportion as the Quotient of Two Forms of One Equation," Mr. Heman Burr Leonard suggests certain new methods of teaching problems in proportion, and if these do not look quite so simple on paper as they really are, the article certainly confirms an important point, namely, the necessity of familiarising pupils with the use of *formulae* in solving problems, instead of the more restricted methods of "rule of three." Under the title "Relation of Course of Study to Higher Wages" Prof. John B. Phillips directs attention to the large number of important inventions that have been made by men of little or no education. His suggestion that "invention" should form part of an educational curriculum is interesting, though one may perhaps ask whether *teaching* people to be *original* is not rather a contradiction of terms. Lastly, we have an account of the Colorado Mathematical Society, founded last year, from which it appears that several important points in the teaching of mathematics, such as over-elaboration of text-books, athletic and other distractions, and what has sometimes been called "spoon feeding" on the part of teachers, have been discussed.

Mr. R. J. Thompson deals with the development of agriculture in Denmark in a paper published in the Journal of the Royal Statistical Society, lxix., 2. He attributes the prosperity of the country to three causes: land tenure, education, and cooperation. So far from rural depopulation taking place, the land is better farmed than it was forty years ago. The rate of wage is lower than in England, and thrift is a national characteristic. The bulk of the land is cultivated by the owners in small farms.

About forty years have elapsed since Gustav Theodor Fechner laid down his principle of association. The *Psychological Review* has marked the occasion in a fitting way by devoting its May number to a paper by Prof. Lilien J. Martin on an experimental study of Fechner's principles of æsthetics. It is illustrated by a portrait of Fechner and a coloured reproduction illustrating a case of chromanæsthesia.

The isolation and identification of radio-thorium from the sediments of Bad Kreuznach is described in detail by Messrs. Elster and Geitel in the *Physikalische Zeitschrift* (No. 13). The fact that radio-thorium is associated with iron in these sediments suggested a simple method of isolating radio-thorium from ordinary thorium salts. A nearly neutral solution of thorium chloride was mixed with a solution of ferrous bicarbonate, when it was found that the ferric hydroxide precipitated in the course of a few days was highly active. After removal of the iron, several milligrams of a thorium hydroxide were obtained having an activity twelve times that of the original thorium. These results, taken in conjunction with those already recorded (Nature, vol. lxxiv., p. 385), leave little doubt that thorium owes its activity to radio-thorium.

Despite the many attempts which have been made to elucidate the nature of the blue substance formed by the action of iodine on starch paste, the question still remains without a definite solution. Messrs. M. Padoa and B. Savarè in the *Gazzetta* (vol. xxxvi., p. 310) have attacked the problem in a new way by investigating the change in the electrical conductivity of a solution of iodine in potassium iodide caused by the addition of starch in known proportions. The conclusion is drawn from their experiments that the blue substance is an additive compound of iodine, starch, and potassium iodide (or hydrogen iodide) containing the two former constituents in the ratio 1 : $C_6H_{10}O_5$ = 1 : 4. While this result supports the opinion of Mylius, enunciated some twenty years ago, it is directly opposed to the more recent view of Küster that the blue substance is not a definite substance, but is formed as a result of adsorption by the colloid starch. Küster's contention recently received striking support by the work of Biltz in 1904, who showed that basic lanthanum acetate, which resembles starch in its colloidal nature, also produces with iodine an intensely blue substance similar in all respects to that formed from starch; in this case there seems to be no evidence to consider the substance as a definite chemical compound.

THE current issues of the *Lancet* and the *British Medical Journal* are educational numbers, and are entirely devoted to communications bearing upon preparation for the medical profession.

THE Royal Geographical Society has issued through Mr. E. Stanford a general index to the first twenty volumes of the *Geographical Journal*, 1893–1902. The work, which is divided into three parts, devoted respectively to papers, maps, and general subjects, should prove a boon to geographers.

THE third edition of Prof. R. von Wettstein's "Leitfaden der Botanik für die oberen Klassen der Mittelschulen" has just been published by Mr. F. Tempsky, Vienna. The book contains 236 pages, more than half of which (134 pages) are devoted to systematic botany, while the remaining sections deal with plant anatomy, organography, physiology and ecology, geography, and economic botany. There are three coloured plates and more than a thousand figures upon 205 blocks. Within its limits, the work makes an admirable survey of the realm of botany, being attractive in illustration, concise in description, and sound in substance.

OUR ASTRONOMICAL COLUMN.

RETURN OF HOLMES'S COMET (1906*f*).—The remarkable comet discovered by Mr. Holmes on November 2, 1892, has been re-discovered on this, its second, return by Dr. Max Wolf at the Königstuhl Observatory, Heidelberg. From the Kiel telegram announcing this fact we learn that on August 28, the date of the observation, the comet's position at 13h. 52·1m. (Königstuhl M.T.) was

R.A. = 4h. 7m. 24s., dec. = +42° 28′.

This position is between one-third and one-half the distance between 52 and 53 Persei, and crosses our meridian at about 5.30 a.m.

Comparing the position with that given by the ephemeris published by Dr. H. J. Zwiers in No. 4085 of the *Astronomische Nachrichten*, we find that small corrections of about +0·5m. in R.A. and +3′·5 in declination need to be applied to the latter. A portion of this ephemeris is given hereunder:—

Ephemeris 0h. (M.T. Greenwich).

1906		α (app.) h. m.		δ (app.) ° ′
Sept. 6	...	4 17	...	+44 6
8	...	4 19	...	+44 29
10	...	4 21	...	+44 51
12	...	4 23	...	+45 12
Sept. 14	...	4 25	...	+45 34
16	...	4 26	...	+45 56
18	...	4 28	...	+46 17
20	...	4 29	...	+46 38

COMET 1906*e* (KOPFF).—Circular No. 90 from the Kiel Centralstelle gives three ephemerides for the comet recently discovered by Herr Kopff at Heidelberg. The following was computed by Herr M. Ebell:—

Ephemeris 12h. (Berlin M.T.).

1906		α h. m. s.		δ ° ′		log Δ		Brightness
Sept. 4	...	22 39 58	...	+9 36·0	...	0·0490	...	0·75
8	...	22 37 19	...	+9 14·9	...	0·0639	...	0·67
12	...	22 34 57	...	+8 52·0	...	0·0797	...	0·60
16	...	22 32 55	...	+8 28·1	...	0·0961	...	0·54

Several observations of this comet are recorded in No. 4117 of the *Astronomische Nachrichten*. Prof. Kobold, observing at Kiel on August 23, saw it as an undecided, round spot of 2′ diameter with a central condensation of magnitude 11·0. The magnitude of the whole was 10·5. From an observation, also made on August 23, Prof. Hartwig described it as having a diameter of 1′·5, a nucleus of magnitude 13·0, and a round shape, the total magnitude being 12·0.

A NEWLY-DISCOVERED PLANETARY NEBULA.—On examining one of the plates taken with the 10-inch Brashear lens of the Bruce photographic telescope, Prof. Barnard discovered the image of a fine planetary nebula which does not appear to be in the catalogues. The approximate position of the nebula, for 1855, is α = 11h. 7m., δ = +15° 42′. In the same region there appear to be quite a number of spiral nebulæ and nebulous stars (*Astronomische Nachrichten*, No. 4112).

PLEA FOR AN INTERNATIONAL SOUTHERN TELESCOPE.—In No. 182, vol. xlv., of the Proceedings of the American Philosophical Society Prof. E. C. Pickering advances a businesslike plea for the institution of a large international reflector in the southern hemisphere. He points out that, under the existing conditions, it is hard to see how any great step may be made in the advance of astronomy, but thinks that if a reflector of about 7 feet aperture and 44 feet focal length were erected in the best possible atmosphere to be found in the southern hemisphere, advances of immense importance might accrue. The cost he estimates at something less than 500,000 dollars (rather more than 100,000*l.*), and he suggests that such a scheme would be an eminently suitable one by which to commemorate the Franklin bi-centenary.

THE PROGRESS OF AGRICULTURAL SCIENCE.

THREE years ago the Royal Agricultural Society conceived the happy idea of holding, in connection with its annual shows, an agricultural education exhibition, at which the work of the various agricultural colleges might be brought prominently before the public, and especially the latest results of agricultural scientific research. The fourth annual exhibition of this kind was recently held at Derby, and the object of this note is to indicate several of the more important directions which agricultural research and rural education are now taking, and the results as illustrated at the exhibition.

Mendel's Laws of Inheritance.

Important hybridising experiments on the lines of Mendel's laws of inheritance are being carried out at the Cambridge University Agricultural Department by Mr. R. H. Biffen. Mendel's laws prove the recurrence in breeding of dominant and recessive characters in certain definite proportions, and their application renders possible the production of new fixed types in two or three generations with mathematical precision instead of as formerly after years of more or less haphazard breeding by selection. Thus in crossing smooth red with rough white wheat, the first cross was apparently of fixed type; but in the second generation only one out of sixteen bred true; in the third generation three bred true; in the fourth generation four bred true, and the type was fixed. The same principles are applicable to the inheritance of disease. Rows of wheats were shown proving the possibility of